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SEQUENCE LISTING

<110> PARDO-FERNANDEZ, LUIS ANGEL
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BECKH, SYNNOVE
BRUGGEMANN, ANDREA
FERNANDEZ-MIRANDA, DONATO DEL CAMINO
PEREZ, ARACELI SANCHEZ
WESELOH, RUDIGER

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Gly Asn Ala Gln Ile Val Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly
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Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser
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Ser Thr Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile
 65                  70                  75                  80

Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
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Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
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Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
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Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
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Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
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Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His
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Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile
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Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
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Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
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Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
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Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Gly Ile Ser
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Ser Leu Phe Ser Ser Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg
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Val Ala Arg Lys Leu Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu
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Val Leu Leu Val Cys Val Phe Gly Leu Ala Ala His Trp Met Ala Cys
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Ile Trp Tyr Ser Ile Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys
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Thr Ile Arg Asn Asn Ser Trp Leu Tyr Gln Leu Ala Met Asp Ile Gly
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Glu Lys Ile Phe Ala Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr
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Ala Thr Ile Phe Gly Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala
465                 470                 475                 480

Asn Thr Asn Arg Tyr His Glu Met Leu Asn Ser Val Arg Asp Phe Leu
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Lys Leu Tyr Gln Val Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr
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Ile Val Ser Thr Trp Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val
        515                 520                 525

Leu Gln Ile Cys Pro Lys Asp Met Arg Ala Asp Ile Cys Val His Leu
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Asn Arg Lys Val Phe Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp
545                 550                 555                 560

Gly Cys Leu Arg Ala Leu Ala Met Glu Phe Gln Thr Val His Cys Ala
                565                 570                 575

Pro Gly Asp Leu Ile Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys
            580                 585                 590

Phe Val Val Ser Gly Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val
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Ala Ile Leu Gly Lys Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu
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Ala Thr Leu Ala Gln Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys
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Asp Leu His Val Ile Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe
                645                 650                 655

Tyr Thr Ala Phe Ser His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr
            660                 665                 670

Asn Leu Arg Lys Arg Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg
        675                 680                 685

Glu Glu Glu Glu Arg Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu
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Pro Pro Asp His Pro Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln
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Leu Asp Val Glu Lys Gly Asn Val Leu Thr Glu His Ala Ser Ala Asn
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His Ser Leu Val Lys Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala
        755                 760                 765

Thr Pro Val Ser Phe Gln Ala Ala Ser Thr Ser Gly Val Pro Asp His
    770                 775                 780

Ala Lys Leu Gln Ala Pro Gly Ser Glu Cys Leu Gly Pro Lys Gly Gly
785                 790                 795                 800

Gly Gly Asp Cys Ala Lys Arg Lys Ser Trp Ala Arg Phe Lys Asp Ala
                805                 810                 815

Cys Gly Lys Ser Glu Asp Trp Asn Lys Val Ser Lys Ala Glu Ser Met
            820                 825                 830

Glu Thr Leu Pro Glu Arg Thr Lys Ala Ser Gly Glu Ala Thr Leu Lys
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Lys Thr Asp Ser Cys Asp Ser Gly Ile Thr Lys Ser Asp Leu Arg Leu
    850                 855                 860

Asp Asn Val Gly Glu Ala Arg Ser Pro Gln Asp Arg Ser Pro Ile Leu
865                 870                 875                 880

Ala Glu Val Lys His Ser Phe Tyr Pro Ile Pro Glu Gln Thr Leu Gln
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Ala Thr Val Leu Glu Val Arg His Glu Leu Lys Glu Asp Ile Lys Ala
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Leu Asn Ala Lys Met Thr Asn Ile Glu Lys Gln Leu Ser Glu Ile Leu
        915                 920                 925

Arg Ile Leu Thr Ser Arg Arg Ser Ser Gln Ser Pro Gln Glu Leu Phe
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Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser
    50                  55                  60

Ser Thr Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile
65                  70                  75                  80

Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
                85                  90                  95

Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
            100                 105                 110

Ile Ala Pro Ile Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys
        115                 120                 125

Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser
    130                 135                 140

Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
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Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
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Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
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Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His
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Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile
    210                 215                 220

Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser
225                 230                 235                 240

Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile
                245                 250                 255

Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
            260                 265                 270

Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
        275                 280                 285

Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
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Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Val Ser Ala
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Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg Val Ala Arg Lys Leu
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Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu Val Leu Leu Val Cys
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Val Phe Gly Leu Ala Ala His Trp Met Ala Cys Ile Trp Tyr Ser Ile
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Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys Thr Ile Arg Asn Asn
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Ser Trp Leu Tyr Gln Leu Ala Met Asp Ile Gly Thr Pro Tyr Gln Phe
            420                 425                 430

Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly Pro Ser Lys Asn Ser
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Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr Ser Leu Thr Ser Val
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Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile Glu Lys Ile Phe Ala
465                 470                 475                 480

Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr Ala Thr Ile Phe Gly
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Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala Asn Thr Asn Arg Tyr
            500                 505                 510

His Glu Met Leu Asn Ser Val Arg Asp Phe Leu Lys Leu Tyr Gln Val
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Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr Ile Val Ser Thr Trp
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Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val Leu Gln Ile Cys Pro
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Lys Asp Met Arg Ala Asp Ile Cys Val His Leu Asn Arg Lys Val Phe
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Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp Gly Cys Leu Arg Ala
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Leu Ala Met Glu Phe Gln Thr Val His Cys Ala Pro Gly Asp Leu Ile
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Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys Phe Val Val Ser Gly
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Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys Asp Leu His Val Ile
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Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe Tyr Thr Ala Phe Ser
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His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr Asn Leu Arg Lys Arg
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Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg Glu Glu Glu Glu Arg
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Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu Pro Pro Asp His Pro
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Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln Lys Glu Ala Arg Leu
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Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala Thr Pro Val Ser Phe
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Gln Ala Ala Ser Thr Ser Gly Val Pro Asp His Ala Lys Leu Gln Ala
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Pro Gly Ser Glu Cys Leu Gly Pro Lys Gly Gly Gly Gly Asp Cys Ala
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Asp Ser Gly Ile Thr Lys Ser Asp Leu Arg Leu Asp Asn Val Gly Glu
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Ala Arg Ser Pro Gln Asp Arg Ser Pro Ile Leu Ala Glu Val Lys His
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Ser Phe Tyr Pro Ile Pro Glu Gln Thr Leu Gln Ala Thr Val Leu Glu
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<223> Description of Artificial Sequence: Synthetic DNA

<400> 9
tcactraaga tctatartc 19

<210> 10
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic DNA

<400> 10
cgcatgaact acctgaagac g 21

<210> 11
<211> 21
<212> DNA
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<220>
<223> Description of Artificial Sequence: Synthetic DNA

<400> 11
tctgtggatg gggcgatgtt c 21

<210> 12
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic DNA

<400> 12
gggaggatga ccatggct 18

<210> 13
<211> 2886
<212> DNA
<213> Homo sapiens

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<211> 2967
<212> DNA
<213> Homo sapiens

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<210> 15
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Antisense phosphorothioate ODN

<400> 15
cagccatggt catcctccc 19

<210> 16
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic scrambled sequence

<400> 16
gtcggtacca gtaggaggg 19

<210> 17
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 17
tcagcccagc agaagcatta t 21

<210> 18
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 18
ctggcagcgt gtgagagc 18

<210> 19
<211> 3041
<212> DNA
<213> Bovine sp.

<400> 19
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<212> DNA
<213> Rattus sp.

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<211> 960
<212> PRT
<213> Bovine sp.

<400> 21

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Gly Asn Ala Gln Ile Val Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly
         35                  40                  45

Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser
     50                  55                  60

Ser Thr Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile
 65                  70                  75                  80

Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
                 85                  90                  95

Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
            100                 105                 110

Ile Ala Pro Ile Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys
        115                 120                 125

Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser
    130                 135                 140

Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
145                 150                 155                 160

Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
                165                 170                 175

Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
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Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His
        195                 200                 205

Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile
    210                 215                 220

Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser
225                 230                 235                 240

Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile
                245                 250                 255

Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
            260                 265                 270

Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
        275                 280                 285

Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
    290                 295                 300
```

```
Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Gly Ile Ser
305                 310                 315                 320

Ser Leu Phe Ser Ser Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg
                325                 330                 335

Val Ala Arg Lys Leu Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu
            340                 345                 350

Val Leu Leu Val Cys Val Phe Gly Leu Ala Ala His Trp Met Ala Cys
        355                 360                 365

Ile Trp Tyr Ser Ile Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys
    370                 375                 380

Thr Ile Arg Asn Asn Ser Trp Leu Tyr Gln Leu Ala Met Asp Ile Gly
385                 390                 395                 400

Thr Pro Tyr Gln Phe Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly
                405                 410                 415

Pro Ser Lys Asn Ser Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr
            420                 425                 430

Ser Leu Thr Ser Val Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile
        435                 440                 445

Glu Lys Ile Phe Ala Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr
    450                 455                 460

Ala Thr Ile Phe Gly Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala
465                 470                 475                 480

Asn Thr Asn Arg Tyr His Glu Met Leu Asn Ser Val Arg Asp Phe Leu
                485                 490                 495

Lys Leu Tyr Gln Val Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr
            500                 505                 510

Ile Val Ser Thr Trp Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val
        515                 520                 525

Leu Gln Ile Cys Pro Lys Asp Met Arg Ala Asp Ile Cys Val His Leu
    530                 535                 540

Asn Arg Lys Val Phe Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp
545                 550                 555                 560

Gly Cys Leu Arg Ala Leu Ala Met Glu Phe Gln Thr Val His Cys Ala
                565                 570                 575

Pro Gly Asp Leu Ile Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys
            580                 585                 590

Phe Val Val Ser Gly Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val
        595                 600                 605
```

```
Ala Ile Leu Gly Lys Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu
    610                 615                 620

Ala Thr Leu Ala Gln Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys
625                 630                 635                 640

Asp Leu His Val Ile Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe
                645                 650                 655

Tyr Thr Ala Phe Ser His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr
            660                 665                 670

Asn Leu Arg Lys Arg Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg
        675                 680                 685

Glu Glu Glu Glu Arg Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu
    690                 695                 700

Pro Pro Asp His Pro Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln
705                 710                 715                 720

Lys Glu Ala Arg Leu Ala Ala Glu Arg Gly Gly Arg Asp Leu Asp Asp
                725                 730                 735

Leu Asp Val Glu Lys Gly Ser Val Leu Thr Glu His Ser His His Gly
            740                 745                 750

Leu Ala Lys Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala Thr Pro
        755                 760                 765

Val Ala Phe Pro Ala Ala Ala Ala Pro Ala Gly Leu Asp His Ala Arg
    770                 775                 780

Leu Gln Ala Pro Gly Ala Glu Gly Leu Gly Pro Lys Ala Gly Gly Ala
785                 790                 795                 800

Asp Cys Ala Lys Arg Lys Gly Trp Ala Arg Phe Lys Asp Ala Cys Gly
                805                 810                 815

Gln Ala Glu Asp Trp Ser Lys Val Ser Lys Ala Glu Ser Met Glu Thr
            820                 825                 830

Leu Pro Glu Arg Thr Lys Ala Ala Gly Glu Ala Thr Leu Lys Lys Thr
        835                 840                 845

Asp Ser Cys Asp Ser Gly Ile Thr Lys Ser Asp Leu Arg Leu Asp Asn
    850                 855                 860

Val Gly Glu Ala Arg Ser Pro Gln Asp Arg Ser Pro Ile Leu Ala Glu
865                 870                 875                 880

Val Lys His Ser Phe Tyr Pro Ile Pro Glu Gln Thr Leu Gln Ala Ala
                885                 890                 895

Val Leu Glu Val Lys His Glu Leu Lys Glu Asp Ile Lys Ala Leu Ser
            900                 905                 910
```

```
Thr Lys Met Thr Ser Ile Glu Lys Gln Leu Ser Glu Ile Leu Arg Ile
        915                 920                 925

Leu Thr Ser Arg Arg Ser Ser Gln Ser Pro Gln Glu Leu Phe Glu Ile
    930                 935                 940

Ser Arg Pro Gln Ser Pro Glu Ser Glu Arg Asp Ile Phe Gly Ala Ser
945                 950                 955                 960
```

<210> 22
<211> 987
<212> PRT
<213> Bovine sp.

<400> 22

```
Met Thr Met Ala Gly Gly Arg Lys Gly Leu Val Ala Pro Gln Asn Thr
  1               5                  10                  15

Phe Leu Glu Asn Ile Val Arg Arg Ser Asn Asp Thr Asn Phe Val Leu
             20                  25                  30

Gly Asn Ala Gln Ile Val Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly
         35                  40                  45

Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser
     50                  55                  60

Ser Thr Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Ile
 65                  70                  75                  80

Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
                 85                  90                  95

Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
            100                 105                 110

Ile Ala Pro Ile Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys
        115                 120                 125

Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser
    130                 135                 140

Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
145                 150                 155                 160

Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
                165                 170                 175

Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
            180                 185                 190

Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His
        195                 200                 205

Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile
    210                 215                 220
```

```
Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser
225                 230                 235                 240

Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile
                245                 250                 255

Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
            260                 265                 270

Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
        275                 280                 285

Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
    290                 295                 300

Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Val Ser Ala
305                 310                 315                 320

Phe Met Gly Asp Pro Gly Lys Ile Gly Phe Ala Asp Gln Ile Pro Pro
                325                 330                 335

Pro Leu Glu Gly Arg Glu Ser Gln Gly Ile Ser Ser Leu Phe Ser Ser
            340                 345                 350

Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg Val Ala Arg Lys Leu
        355                 360                 365

Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu Val Leu Leu Val Cys
    370                 375                 380

Val Phe Gly Leu Ala Ala His Trp Met Ala Cys Ile Trp Tyr Ser Ile
385                 390                 395                 400

Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys Thr Ile Arg Asn Asn
                405                 410                 415

Ser Trp Leu Tyr Gln Leu Ala Met Asp Ile Gly Thr Pro Tyr Gln Phe
            420                 425                 430

Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly Pro Ser Lys Asn Ser
        435                 440                 445

Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr Ser Leu Thr Ser Val
    450                 455                 460

Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile Glu Lys Ile Phe Ala
465                 470                 475                 480

Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr Ala Thr Ile Phe Gly
                485                 490                 495

Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala Asn Thr Asn Arg Tyr
            500                 505                 510

His Glu Met Leu Asn Ser Val Arg Asp Phe Leu Lys Leu Tyr Gln Val
        515                 520                 525
```

```
Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr Ile Val Ser Thr Trp
    530                 535                 540

Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val Leu Gln Ile Cys Pro
545                 550                 555                 560

Lys Asp Met Arg Ala Asp Ile Cys Val His Leu Asn Arg Lys Val Phe
                565                 570                 575

Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp Gly Cys Leu Arg Ala
            580                 585                 590

Leu Ala Met Glu Phe Gln Thr Val His Cys Ala Pro Gly Asp Leu Ile
        595                 600                 605

Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys Phe Val Val Ser Gly
    610                 615                 620

Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val Ala Ile Leu Gly Lys
625                 630                 635                 640

Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu Ala Thr Leu Ala Gln
                645                 650                 655

Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys Asp Leu His Val Ile
            660                 665                 670

Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe Tyr Thr Ala Phe Ser
        675                 680                 685

His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr Asn Leu Arg Lys Arg
    690                 695                 700

Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg Glu Glu Glu Glu Arg
705                 710                 715                 720

Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu Pro Pro Asp His Pro
                725                 730                 735

Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln Lys Glu Ala Arg Leu
            740                 745                 750

Ala Ala Glu Arg Gly Gly Arg Asp Leu Asp Asp Leu Asp Val Glu Lys
        755                 760                 765

Gly Ser Val Leu Thr Glu His Ser His His Gly Leu Ala Lys Ala Ser
    770                 775                 780

Val Val Thr Val Arg Glu Ser Pro Ala Thr Pro Val Ala Phe Pro Ala
785                 790                 795                 800

Ala Ala Ala Pro Ala Gly Leu Asp His Ala Arg Leu Gln Ala Pro Gly
                805                 810                 815

Ala Glu Gly Leu Gly Pro Lys Ala Gly Gly Ala Asp Cys Ala Lys Arg
            820                 825                 830
```

```
Lys Gly Trp Ala Arg Phe Lys Asp Ala Cys Gly Gln Ala Glu Asp Trp
        835                 840                 845

Ser Lys Val Ser Lys Ala Glu Ser Met Glu Thr Leu Pro Glu Arg Thr
    850                 855                 860

Lys Ala Ala Gly Glu Ala Thr Leu Lys Lys Thr Asp Ser Cys Asp Ser
865                 870                 875                 880

Gly Ile Thr Lys Ser Asp Leu Arg Leu Asp Asn Val Gly Glu Ala Arg
                885                 890                 895

Ser Pro Gln Asp Arg Ser Pro Ile Leu Ala Glu Val Lys His Ser Phe
            900                 905                 910

Tyr Pro Ile Pro Glu Gln Thr Leu Gln Ala Ala Val Leu Glu Val Lys
        915                 920                 925

His Glu Leu Lys Glu Asp Ile Lys Ala Leu Ser Thr Lys Met Thr Ser
    930                 935                 940

Ile Glu Lys Gln Leu Ser Glu Ile Leu Arg Ile Leu Thr Ser Arg Arg
945                 950                 955                 960

Ser Ser Gln Ser Pro Gln Glu Leu Phe Glu Ile Ser Arg Pro Gln Ser
                965                 970                 975

Pro Glu Ser Glu Arg Asp Ile Phe Gly Ala Ser
            980                 985
```

<210> 23
<211> 989
<212> PRT
<213> Mus sp.

<400> 23

```
Met Thr Met Ala Gly Gly Arg Lys Gly Leu Val Ala Pro Gln Asn Thr
  1               5                  10                  15

Phe Leu Glu Asn Ile Val Arg Arg Ser Asn Asp Thr Asn Phe Val Leu
             20                  25                  30

Gly Asn Ala Gln Ile Val Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly
         35                  40                  45

Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser
     50                  55                  60

Ser Ala Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Val
 65                  70                  75                  80

Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
                 85                  90                  95

Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
            100                 105                 110
```


C

```
Ile Ala Pro Ile Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys
        115                 120                 125

Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser
    130                 135                 140

Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
145                 150                 155                 160

Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
                165                 170                 175

Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
            180                 185                 190

Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His
        195                 200                 205

Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile
    210                 215                 220

Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser
225                 230                 235                 240

Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile
                245                 250                 255

Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
            260                 265                 270

Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
        275                 280                 285

Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
    290                 295                 300

Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Val Ser Ala
305                 310                 315                 320

Phe Met Gly Asp Pro Gly Lys Ile Gly Phe Ala Asp Gln Ile Pro Pro
                325                 330                 335

Pro Leu Glu Gly Arg Glu Ser Gln Gly Ile Ser Ser Leu Phe Ser Ser
            340                 345                 350

Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg Val Ala Arg Lys Leu
        355                 360                 365

Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu Val Leu Leu Val Cys
    370                 375                 380

Val Phe Gly Leu Ala Ala His Trp Met Ala Cys Ile Trp Tyr Ser Ile
385                 390                 395                 400

Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys Thr Ile Arg Asn Asn
                405                 410                 415
```

```
Ser Trp Leu Tyr Gln Leu Ala Leu Asp Ile Gly Thr Pro Tyr Gln Phe
            420                 425                 430

Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly Pro Ser Lys Asn Ser
        435                 440                 445

Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr Ser Leu Thr Ser Val
    450                 455                 460

Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile Glu Lys Ile Phe Ala
465                 470                 475                 480

Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr Ala Thr Ile Phe Gly
                485                 490                 495

Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala Asn Thr Asn Arg Tyr
            500                 505                 510

His Glu Met Leu Asn Ser Val Arg Asp Phe Leu Lys Leu Tyr Gln Val
        515                 520                 525

Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr Ile Val Ser Thr Trp
    530                 535                 540

Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val Leu Gln Ile Cys Pro
545                 550                 555                 560

Lys Asp Met Arg Ala Asp Ile Cys Val His Leu Asn Arg Lys Val Phe
                565                 570                 575

Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp Gly Cys Leu Arg Ala
            580                 585                 590

Leu Ala Met Glu Phe Gln Thr Val His Cys Ala Pro Gly Asp Leu Ile
        595                 600                 605

Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys Phe Val Val Ser Gly
    610                 615                 620

Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val Ala Ile Leu Gly Lys
625                 630                 635                 640

Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu Ala Thr Leu Ala Gln
                645                 650                 655

Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys Asp Leu His Val Ile
            660                 665                 670

Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe Tyr Thr Ala Phe Ser
        675                 680                 685

His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr Asn Leu Arg Lys Arg
    690                 695                 700

Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg Glu Glu Glu Glu Arg
705                 710                 715                 720
```


C

```
Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu Pro Pro Asp His Pro
                725                 730                 735

Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln Lys Glu Ala Arg Leu
            740                 745                 750

Ala Ala Glu Arg Gly Gly Arg Asp Leu Asp Asp Leu Asp Val Glu Lys
        755                 760                 765

Gly Asn Ala Leu Thr Asp His Thr Ser Ala Asn His Gly Leu Ala Lys
    770                 775                 780

Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala Thr Pro Val Ala Phe
785                 790                 795                 800

Gln Ala Ala Thr Thr Ser Thr Met Ser Asp His Ala Lys Leu His Ala
                805                 810                 815

Pro Gly Ser Glu Cys Leu Gly Pro Lys Ala Val Ser Cys Asp Pro Ala
            820                 825                 830

Lys Arg Lys Gly Trp Ala Arg Phe Lys Asp Ala Cys Gly Gln Ala Glu
        835                 840                 845

Asp Trp Ser Lys Val Ser Lys Ala Glu Ser Met Glu Thr Leu Pro Glu
    850                 855                 860

Arg Thr Lys Ala Pro Gly Glu Ala Thr Leu Lys Lys Thr Asp Ser Cys
865                 870                 875                 880

Asp Ser Gly Ile Thr Lys Ser Asp Leu Arg Leu Asp Asn Val Gly Glu
                885                 890                 895

Thr Arg Ser Pro Gln Asp Arg Ser Pro Ile Leu Ala Glu Val Lys His
            900                 905                 910

Ser Phe Tyr Pro Ile Pro Glu Gln Thr Leu Gln Ala Ala Val Leu Glu
        915                 920                 925

Val Lys Tyr Glu Leu Lys Glu Asp Ile Lys Ala Leu Asn Ala Lys Met
    930                 935                 940

Thr Ser Ile Glu Lys Gln Leu Ser Glu Ile Leu Arg Ile Leu Met Ser
945                 950                 955                 960

Arg Gly Ser Ala Gln Ser Pro Gln Glu Thr Gly Glu Ile Ser Arg Pro
                965                 970                 975

Gln Ser Pro Glu Ser Asp Arg Asp Ile Phe Gly Ala Ser
            980                 985
```

<210> 24
<211> 962
<212> PRT
<213> Rattus sp.

<400> 24

```
Met Thr Met Ala Gly Gly Arg Lys Gly Leu Val Ala Pro Gln Asn Thr
  1               5                  10                  15

Phe Leu Glu Asn Ile Val Arg Arg Ser Asn Asp Thr Asn Phe Val Leu
             20                  25                  30

Gly Asn Ala Gln Ile Val Asp Trp Pro Ile Val Tyr Ser Asn Asp Gly
         35                  40                  45

Phe Cys Lys Leu Ser Gly Tyr His Arg Ala Glu Val Met Gln Lys Ser
     50                  55                  60

Ser Ala Cys Ser Phe Met Tyr Gly Glu Leu Thr Asp Lys Asp Thr Val
 65                  70                  75                  80

Glu Lys Val Arg Gln Thr Phe Glu Asn Tyr Glu Met Asn Ser Phe Glu
                 85                  90                  95

Ile Leu Met Tyr Lys Lys Asn Arg Thr Pro Val Trp Phe Phe Val Lys
            100                 105                 110

Ile Ala Pro Ile Arg Asn Glu Gln Asp Lys Val Val Leu Phe Leu Cys
        115                 120                 125

Thr Phe Ser Asp Ile Thr Ala Phe Lys Gln Pro Ile Glu Asp Asp Ser
    130                 135                 140

Cys Lys Gly Trp Gly Lys Phe Ala Arg Leu Thr Arg Ala Leu Thr Ser
145                 150                 155                 160

Ser Arg Gly Val Leu Gln Gln Leu Ala Pro Ser Val Gln Lys Gly Glu
                165                 170                 175

Asn Val His Lys His Ser Arg Leu Ala Glu Val Leu Gln Leu Gly Ser
            180                 185                 190

Asp Ile Leu Pro Gln Tyr Lys Gln Glu Ala Pro Lys Thr Pro Pro His
        195                 200                 205

Ile Ile Leu His Tyr Cys Val Phe Lys Thr Thr Trp Asp Trp Ile Ile
    210                 215                 220

Leu Ile Leu Thr Phe Tyr Thr Ala Ile Leu Val Pro Tyr Asn Val Ser
225                 230                 235                 240

Phe Lys Thr Arg Gln Asn Asn Val Ala Trp Leu Val Val Asp Ser Ile
                245                 250                 255

Val Asp Val Ile Phe Leu Val Asp Ile Val Leu Asn Phe His Thr Thr
            260                 265                 270

Phe Val Gly Pro Ala Gly Glu Val Ile Ser Asp Pro Lys Leu Ile Arg
        275                 280                 285

Met Asn Tyr Leu Lys Thr Trp Phe Val Ile Asp Leu Leu Ser Cys Leu
    290                 295                 300
```

```
Pro Tyr Asp Val Ile Asn Ala Phe Glu Asn Val Asp Glu Gly Ile Ser
305                 310                 315                 320

Ser Leu Phe Ser Ser Leu Lys Val Val Arg Leu Leu Arg Leu Gly Arg
                325                 330                 335

Val Ala Arg Lys Leu Asp His Tyr Ile Glu Tyr Gly Ala Ala Val Leu
            340                 345                 350

Val Leu Leu Val Cys Val Phe Gly Leu Ala Ala His Trp Met Ala Cys
        355                 360                 365

Ile Trp Tyr Ser Ile Gly Asp Tyr Glu Ile Phe Asp Glu Asp Thr Lys
    370                 375                 380

Thr Ile Arg Asn Asn Ser Trp Leu Tyr Gln Leu Ala Leu Asp Ile Gly
385                 390                 395                 400

Thr Pro Tyr Gln Phe Asn Gly Ser Gly Ser Gly Lys Trp Glu Gly Gly
                405                 410                 415

Pro Ser Lys Asn Ser Val Tyr Ile Ser Ser Leu Tyr Phe Thr Met Thr
            420                 425                 430

Ser Leu Thr Ser Val Gly Phe Gly Asn Ile Ala Pro Ser Thr Asp Ile
        435                 440                 445

Glu Lys Ile Phe Ala Val Ala Ile Met Met Ile Gly Ser Leu Leu Tyr
    450                 455                 460

Ala Thr Ile Phe Gly Asn Val Thr Thr Ile Phe Gln Gln Met Tyr Ala
465                 470                 475                 480

Asn Thr Asn Arg Tyr His Glu Met Leu Asn Ser Val Arg Asp Phe Leu
                485                 490                 495

Lys Leu Tyr Gln Val Pro Lys Gly Leu Ser Glu Arg Val Met Asp Tyr
            500                 505                 510

Ile Val Ser Thr Trp Ser Met Ser Arg Gly Ile Asp Thr Glu Lys Val
        515                 520                 525

Leu Gln Ile Cys Pro Lys Asp Met Arg Ala Asp Ile Cys Val His Leu
    530                 535                 540

Asn Arg Lys Val Phe Lys Glu His Pro Ala Phe Arg Leu Ala Ser Asp
545                 550                 555                 560

Gly Cys Leu Arg Ala Leu Ala Met Glu Phe Gln Thr Val His Cys Ala
                565                 570                 575

Pro Gly Asp Leu Ile Tyr His Ala Gly Glu Ser Val Asp Ser Leu Cys
            580                 585                 590

Phe Val Val Ser Gly Ser Leu Glu Val Ile Gln Asp Asp Glu Val Val
        595                 600                 605
```

```
Ala Ile Leu Gly Lys Gly Asp Val Phe Gly Asp Val Phe Trp Lys Glu
    610                 615                 620

Ala Thr Leu Ala Gln Ser Cys Ala Asn Val Arg Ala Leu Thr Tyr Cys
625                 630                 635                 640

Asp Leu His Val Ile Lys Arg Asp Ala Leu Gln Lys Val Leu Glu Phe
                645                 650                 655

Tyr Thr Ala Phe Ser His Ser Phe Ser Arg Asn Leu Ile Leu Thr Tyr
            660                 665                 670

Asn Leu Arg Lys Arg Ile Val Phe Arg Lys Ile Ser Asp Val Lys Arg
        675                 680                 685

Glu Glu Glu Glu Arg Met Lys Arg Lys Asn Glu Ala Pro Leu Ile Leu
    690                 695                 700

Pro Pro Asp His Pro Val Arg Arg Leu Phe Gln Arg Phe Arg Gln Gln
705                 710                 715                 720

Lys Glu Ala Arg Leu Ala Ala Glu Arg Gly Gly Arg Asp Leu Asp Asp
                725                 730                 735

Leu Asp Val Glu Lys Gly Asn Ala Leu Thr Asp His Thr Ser Ala Asn
            740                 745                 750

His Gly Leu Ala Lys Ala Ser Val Val Thr Val Arg Glu Ser Pro Ala
        755                 760                 765

Thr Pro Val Ala Phe Gln Ala Ala Ser Thr Ser Thr Val Ser Asp His
    770                 775                 780

Ala Lys Leu His Ala Pro Gly Ser Glu Cys Leu Gly Pro Lys Ala Gly
785                 790                 795                 800

Gly Gly Asp Pro Ala Lys Arg Lys Gly Trp Ala Arg Phe Lys Asp Ala
                805                 810                 815

Cys Gly Gln Ala Glu Asp Trp Ser Lys Val Ser Lys Ala Glu Ser Met
            820                 825                 830

Glu Thr Leu Pro Glu Arg Thr Lys Ala Ala Gly Glu Ala Thr Leu Lys
        835                 840                 845

Lys Thr Asp Ser Cys Asp Ser Gly Ile Thr Lys Ser Asp Leu Arg Leu
    850                 855                 860

Asp Asn Val Gly Glu Ala Arg Ser Pro Gln Asp Arg Ser Pro Ile Leu
865                 870                 875                 880

Ala Glu Val Lys His Ser Phe Tyr Pro Ile Pro Glu Gln Thr Leu Gln
                885                 890                 895

Ala Thr Val Leu Glu Val Lys Tyr Glu Leu Lys Glu Asp Ile Lys Ala
            900                 905                 910
```

```
Leu Asn Ala Lys Met Thr Ser Ile Glu Lys Gln Leu Ser Glu Ile Leu
        915                 920                 925

Arg Ile Leu Met Ser Arg Gly Ser Ser Gln Ser Pro Gln Asp Thr Cys
    930                 935                 940

Glu Val Ser Arg Pro Gln Ser Pro Glu Ser Asp Arg Asp Ile Phe Gly
945                 950                 955                 960

Ala Ser
```

C 15 CONT

C